

## REMARKS

The applicants appreciate the Examiner's thorough examination of the application and request reexamination and reconsideration of the application in view of the preceding amendments and the following remarks.

The Examiner rejects independent claims 1 and 26, as well as dependent claims 3, 5, 6, and 12-14, under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Pat. No. 5,531,601 to *Amoroso*. The Examiner also rejects claims dependent claims 9-11 and independent claim 28 as allegedly being unpatentable over *Amoroso* in view of U.S. Pat. No. 4,774,434 to *Bennion*.

*Amoroso* teaches formation of a pouch for a battery. *Amoroso* requires that each portion of fabric include corresponding conductive traces. According to *Amoroso*:

A battery pack is provided consisting of first and second fabrics, each having conductive traces applied on its inside. ...

... The battery pack uses two fabrics having conductive traces applied to their surface ...

... Conductive traces 18 are formed on the second fabric 14. Similar conductive traces 20 are formed on the first fabric 12 ...

See e.g. the *Amoroso* Abstract. See also e.g. *Amoroso* column 1, lines 64-65 and column 2, lines 22-23.

By teaching that both fabrics include conductive traces, *Amoroso* virtually teaches away from any ordinary unmodified fabric at all.

This is in sharp contrast to various configurations of the applicants' invention.

As set forth in the applicants' specification, one object of the applicants' invention is that it "does not require any modification to the fabric". "[N]o modification need be

made to fabric 48”. Also with the applicants’ invention, “the need for conductive fibers in the fabric is eliminated ...” See e.g. the applicants’ specification at page 3, lines 10-11 and page 3 line 23 – page 4, line 1, as well as page 11, line 21.

It is clear that with aspects of the applicants’ invention, the claimed electrically active textile article is formed by starting with an ordinary fabric, or wearable fabric article, for example a shirt, and welding onto the fabric a flexible circuit including traces and pads on a flexible substrate. In other words, the flexible circuit including traces and pads is included on the flexible substrate that is welded onto the fabric. See e.g. the applicants’ specification at page 11, lines 15-19 and Figs. 3 and 4.

To advance prosecution and for clarification, however, the applicant has amended claim 1.

Accordingly, the applicants respectfully submit that claim 1 is in condition for allowance over *Amoroso* for at least these reasons.

Additionally, *Amoroso* teaches that the battery, held in the pouch, completes the electrical connection.

The first fabric 12 and the second fabric 14 are attached together ... This creates a battery pouch area 22 between the first and second fabrics 12 and 14 that holds the battery ... in the correct position ...

... Attaching the fabrics 12 and 14 together ... forms a tight pocket to hold the battery firmly in place after it is slid in through slit 24....

...The battery used is preferably a “button type” battery having a terminal on each side ...

...The placing and removing of the battery in the pouch area 22 can serve as a switch to turn on or off the illuminated article of clothing.

See e.g. the *Amoroso* Abstract and column 2, lines 38-44 and 51-53.

In other words, without the battery in place, *Amoroso*'s conductive traces do not form a circuit. Moreover, when *Amoroso*'s battery is in place, it is not "populating the circuit" as would be understood by those skilled in the art. It is merely placed in a pouch. Further, *Amoroso*'s battery is constrained in its placement.

This is also in contrast to the applicants' invention.

The applicants' invention includes a flexible circuit. Moreover, at least one electronic component populates the circuit. Additionally, the electronic component is "not constrained in [its] placement on [the] circuit". See e.g. the applicants' specification at page 11, line 22.

Accordingly, the applicants respectfully submit that claim 1 is in condition for allowance over *Amoroso* for at least these additional reasons. Claims 3, 5, 6, and 9-14 depend directly or indirectly from claim 1, and thus are also allowable for at least all of the foregoing reasons. Independent claim 26 has also been amended similarly for clarification and to advance prosecution, and thus is in condition for allowance as well.

With respect to the applicants' independent claim 28, it includes the recitation of a protective covering over the flex circuit and the at least one electronic component.

The Examiner combines the secondary reference *Bennion* with *Amoroso* to reject claim 28, alleging in pertinent part that "[i]t would have been obvious at the time the invention was made to provide the flexible circuit of *Amoroso* (U.S.P. 5,531,601) with a waterproof protective cover in order to prevent the circuit from malfunctioning in a wet environment".

The applicants respectfully traverse this rejection.

*Amoroso* teaches that first and second fabrics are attached together to create a battery pouch area between the first and second fabrics to hold the battery. When the battery is not inserted, there is nothing to protect. When the battery is inserted, it is confined in this pouch.

The addition of a protective covering over the pouch to protect the battery would not be obvious to one skilled in the art, since the battery is either not present, or is already confined in a pouch especially made for it.

The applicants respectfully submit that the addition of a protective covering to *Amoroso*'s battery pouch is clearly the result of hindsight reasoning.

Moreover, the applicants claim in pertinent part that the flexible circuit on the flexible substrate is welded onto the fabric by ultrasonic welding or radio frequency processes.

In sharp contrast, *Bennion* fails to teach that circuit board 10 or flexible substrate 11 are welded when *Bennion*'s display is attached to, for example, a shirt.

Instead, according to *Bennion*, "[t]he display and shirt are placed in a heat transfer press, so that the adhesive melts and bonds the display to the shirt". See *Bennion* at column 6, lines 50-52, with emphasis added.

The applicants submit that the applicant's claimed flexible circuit on a flexible substrate which is welded onto a fabric, is structurally distinguishable from the circuit board and flexible substrate which are attached to a shirt by an adhesive which is melted. The latter structure is taught by *Bennion*.

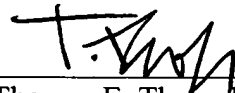
Accordingly, for at least the foregoing reasons, the applicants submit that independent claim 28 is in condition for allowance. Dependent claims 9-11 are in condition for allowance for these additional reasons, as well as for the reasons discussed above with respect to claim 1.

### CONCLUSION

The Examiner's rejections have been addressed. It is respectfully submitted that the application is in condition for allowance. Early and favorable action is respectfully requested.

If for any reason this Response is found to be incomplete, or if at any time it appears that a telephone conference with counsel would help advance prosecution, please telephone the undersigned or his associates, collect in Waltham, Massachusetts at (781) 890-5678.

Respectfully submitted,



Thomas E. Thompson, Jr.  
Reg. No. 47,136